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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Сот	Complete if Known				
Application Number 10/660,730					
Confirmation Number	4923				
Filing Date	September 12, 2003				
First Named Inventor	Abraham GROSS et al.				
Art Unit	4722 1725				
Examiner Name	Unknown				
Attorney Docket					
Number	Q77482				

U.S. PATENT DOCUMENTS							
		Document N	umber	Publication			
Examiner Initials*	Cite No. ¹	Number	Kind Code ² (if known)	Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document		
5MH-		US 6,252,667		Jun 26, 2001	Hill et al.		
4M+1		US 6,295,171	<u> </u>	Sep 25, 2001	Chao et al.		
SMI		US 4,258,468		Mar 31, 1981	Balde		
4MH		US 6,313,918		Nov 6, 2001	Hill et al.		
5MH		US 5,933,216		Aug 3, 1999	Dunn		
grill-		US 5,674,414		Oct 7, 1997	Schweizer		
MIL		US 6,040,552		Mar 21, 2000	Jain et al.		
SMH.		US 6,037,564		Mar 14, 2000	Tatah		
SMIT		US 60/387,911	<u> </u>	Jun, 2002	Gross et al.		
9/11	·	US 4,447,291		May 8, 1984	Schulte		

			F	OREIGN PA	ATENT DOCUM	ENTS	
		For	eign Patent Docu	ment	Publication		
Examiner Initials*	Cite No. ¹	Country Code ³	Number ⁴	Kind Code ⁵ (if known)	Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Translation 6
4/11-		wo	0064623		Nov, 2000	GSI Lumonics Inc.	
1011 -		EP	1224999		Apr, 2001	Sumitomo Heavy Industries	
SM		WO	03071344		Aug 28, 2003	Orbotech Ltd.	
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		OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS	
Examiner Initials*	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city, and/or country where published.	Translation
SMH		Mignardi et al. "The Digital Micromirror Device – a Micro-Optical Electromechanical Device for Display Applications", MEMS and MOEMS Technology and Applications, SPIE Press, 2000	
SMH		Owen, Mark, New Technology for Drilling Through -and Blind-Vias in Copper Clad Reinforced Circuit Boards, IPC Proceedings, May 1995.	
SMIT		Lee, Rex A. and Moreno, W.A., Excimer vs. ND:YAG Laser Creation of Silicon Vias for 3D Interconnects, IEEE, 1992, pp. 358-360.	

Examiner Signatur	5. Hanrich	Date Considered	Aug. 25, 2005

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Art Unit	1722-1725			
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			U.S.	PATENT DOCU	MENTS
		Document N	lumber	Publication	
Examiner Initials*	Cite No. ¹	Number	Kind Code ² (if known)	Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
SMIT		US 5,789,121		Aug, 1998	Cywar et al.
		US 5,614,114		Mar, 1997	Owen
		US 5,841,099		Nov, 1998	Owen et al.
		US 5,593,606		Jan, 1997	Owen et al.
		US 3,594,081		Jul, 1971	Tschink
		US 5,676,866		Oct, 1997	In den Bäumen et al.
		US 5,690,845		Nov, 1997	Fuse
		US 5,948,291		Sep, 1999	Neylan et al.
		US 6,058,132		May, 2000	Iso et al.
		US 6,420,675		Jul, 2002	Lizotte et al.
		US 6,011,654		Jan, 2000	Schweizer et al.
		US 4,838,631	1	Jun, 1989	Chande et al.
		US 4,950,862		Aug, 1990	Kajikawa
		US 5,113,055		May, 1992	Kuriyama
		US 5,585,019		Dec, 1996	Gu et al.
54H		US 6,310,701		Oct, 2001	Lizotte et al.

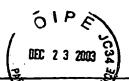
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Application Number	10/660,730
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First Named Inventor	Abraham GROSS et al.
Art Unit	1722 1725
Examiner Name	Unknown
Attorney Docket	
Number	Q77482

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Document Number		Bublication			
Examiner Initials*	Cite No. ¹	Number	Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
SMIT		US 6,515,257		Feb 4, 2003	Jain et al.
		US 5,404,247		Apr 4, 1995	Cobb et al.
		US 5,948,288		Sep 7, 1999	Treves et al.
		US 5,408,553		Apr 18, 1995	English Jr. et al.
		US 6,233,044		May 15, 2001	Brueck et al.
		US 3,594,081		Jul 20, 1971	Tschink
		US 5,055,653		Oct 8, 1991	Funami et al.
		US 5,302,798		Apr 12, 1994	Inagawa et al.
		US 5,973,290		Oct 26, 1999	Noddin
		US 6,184,490		Feb 6, 2001	Schweizer
		US 6,573,473		Jun 3, 2003	Hunter et al.
		US 20030019854	Ĭ	Jan 30, 2003	Gross et al.
		US 20030168434		Sep 11, 2003	Gross et al.
		US 6,172,331		Jan, 2001	Chen
		US 6,491,361		Dec, 2002	Spann .
		US 6,566,627	ĺ	May, 2003	Brandinger et al.
SMIP		US 4,038,108		Jul, 1977	Engel et al.

			F	OREIGN PA	TENT DOCUME	NTS	
-		Foreign Patent Document			Publication		
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Examiner S_Heinrick Date Considered 8-25-2005	
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Comp	lete if Known
Application Number	10/660,730
Confirmation Number	4923
Filing Date	September 12, 2003
First Named Inventor	Abraham GROSS et al.
Art Unit	1722 1725
Examiner Name	Unknown
Attorney Docket Number	Q77482

U.S. PATENT DOCUMENTS								
E	Cita	Document l	Number	Publication Date				
Examiner Initials*	Cite No.1	Number -	Kind Code ² (if known)	MM-DD-YYYY	Name of Patentee or Applicant of Cited Document			
51MH		US 6,483,071	B1	11/19/2002	Hunter et al.			
		US						
		US						
		US						
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FOREIGN PATENT DOCUMENTS								
Examiner	Cite	Foreign Patent Document			Publication Date	Name of Patentee or	_	
Initials*	No.1	Country Code ³	Number ⁴	Kind Code ⁵ (if known)	MM-DD-YYYY	Applicant of Cited Document	Translation ⁶	
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SMH		"Dopant-Induced Excimer Laser Ablation of Poly(tetrafluoroethylene)," Applied Physics B:Photo-Physics and Laser Chemistry, Mar. 92, vol. b54, No. 3, C R Davis et al, pp. 227-230.	
SMH		"Etch-Stop Polymer Machining with an Argon Ion Laser," IBM Technical Disclosure Bulletin, Jan. 1993, vol. 36., No. 1, Armonk, NY, US, p. 254.	
SMAL		Pete Singer, "The Interconnect Challenge: Filling Small, High Aspects Ratio Contact Holes," Semiconductor International, Aug. 1994, pp. 57-64.	
4MH		"Printed Circuit OperationsA View from Inside," Unisys.	
SMH		Richard Harris et al., "MCM Micromachining: Nd:YAG UV Laser Process is a New Option," Electro Scientific Industries, Inc., Spring 1993.	
311		"LaserPulse," Electro Scientific Industries, Inc., Fall 1993, pp. 1-7.	
SMH		Y. S. Liu, "Laser Metal Deposition for High-Density Interconnect," Optics & Photonics News, Jun. 1992, pp. 10-14.	
SMH		Friedrich G. Bachmann, "Large scale industrial application for excimer-lasers; via-hole-drilling by Photo-ablation," SPIE, vol. 1361, Physical Concepts of Materials for Novel Optoelectronic Device Applications, 1990, pp. 500-511.	
5mH		Hans-Ulrich Krebs and Olaf Bremert "Pulsed laser deposition of thin metallic alloys", Applied Physics Letters Vol. 62(19) pp. 2341-2343. May 10, 1993	

Examiner Signature S-	Heinrich	Date Considered 8-25-2005

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Sheet 5 of 6

Сотр	olete if Known
Application Number	10/660,730
Confirmation Number	4923
Filing Date	September 12, 2003
First Named Inventor	Abraham GROSS et al.
Art Unit	1722 1725
Examiner Name	Unknown
Attorney Docket Number	Q77482

	U.S. PATENT DOCUMENTS								
E	Clas	Document Number		Publication Date					
Examiner Initials*	Cite No. ¹	Number	Kind Code ² (if known)	MM-DD-YYYY	Name of Patentee or Applicant of Cited Document				
		US							
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	FOREIGN PATENT DOCUMENTS									
Examiner	Cite	Foreign Patent Document			Publication Date	Name of Patentee or				
Initials*	No.1	Country Code ³	Number ⁴	Kind Code ⁸ (if known)	MM-DD-YYYY	Applicant of Cited Document	Translation ⁶			
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SMH		Brannon, J.H., "Excimer-Laser Ablation and Etching," Circuits & Devices magazine, Sep. 1990 pp. 19-24.	
SMH		Cole, H.S., Liu, Y.S., and Philipp, H.R., "Dependence of photoetching rates of polymers at 193 nm on optical absorption depth," Appl. Phys. Lett., vol. 48, No. 1, 6 Jan. 1986, pp. 76-77.	
SMIL		Dyer, P.E., and Sidhu, J., "Spectroscopic and fast photographic studies of excimer laser polymer ablation," J. Appl. Phys. 64 (9), 1 Nov. 1988, pp. 4657-4663.	
SMA		4420 Laser Micromachining System -ESI Brochure (2 pages), Sep. 1993.	
SMH		Ewing, J.J., "Advanced solid-state lasers challenge conventional types," Laser Focus World, Nov. 1993, pp. 105-110	
SMH		Hobbs, Jerry R., "Electronics makers switch to precise micromachining tools," Laser Focus World, Mar. 1994, pp. 69-72.	
SMH		Lee, Rex A. and Moreno, W.A., Excimer vs. ND:YAG Laser Creation of Silicon Vias for 3D Interconnects, IEEE, 1992, pp. 358-360.	
SMIF		Liu, Y.S., Cole, H.S., and Guida, R., "Laser ablation of polymers for high-density interconnect," Microelectronic Engineering 20 (1993) 15-29, 1993 Elsevier Science Publishers B.V., pp. 15-29.	

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Application Number 10/660,730

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First Named Inventor Abraham GROSS et al.

Art Unit 1727 1725

Examiner Name Unknown

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FOREIGN PATENT DOCUMENTS							
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SMH		Mahan, G.D., et al. "Theory of polymer ablation," Appl. Phys. Lett. 53 (24), 12 Dec. 1988, pp. 2377-2379.			
SMH		Owen, Mark, New Technology for Drilling Through -and Blind-Vias in Copper Clad Reinforced Circuit Boards, IPC Proceedings, May 1995.			
AMR		Srinivasan, R., and Braren R., "Ultraviolet Laser Ablation of Organic Polymers," Chemical Reviews, 1989, vol. 89, No. 6.			
SMH.		Tessier, Theodore G. and Chandler, Jerry, "Compatibility of Common MCM-D Dielectric with Scanning Laser Ablation Via Generation Processes," IEEE (1993), pp. 39-45.			
SMH		"Trepanning Moves in on Mini Holes," Machinery and Production Engineering, 2 Nov. 1983, pp. 42-43.			
SMH		Wiener-Avnear, Eli, "Lasers cut microscopic paths with major potential," Laser Focus World, Jul. 1993, pp. 75-80.			
SMH		Wu et al., "Single-Shot Excimer Laser Ablation of Thick Polymar Desists on Metallic Substrates," AMP Journal of Technology, vol. 1, Nov. 1991, pp. 69-79.			
SMH		Martyniuk J., "UV Laser-Assisted Wire Strippping and Micromachining", AMP Journal of Technology, vol. 4, Jun. 1995.			
SMH		"Laser-Induced Plated Through-Holes," IBM Technical, Disclosure Bulletin, Oct. 1968, vol. 11, No. 5, H.R. Potts and C.A. Speicher, p. 540.			
SMIF	-	ESI "Model 4570 Series Lasers Service Guide", Feb, 1994,			

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Examiner Signature	\supset_{ν}	HEINVICH	Date Considered	3-23-265
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